UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF:
SR-6J

VIA ELECTRONIC MAIL

October 11, 2018

Michael H. Samples
de maximis, inc.
450 Montbrook Lane
Knoxville, Tennessee 37919

Subject: Revised Remedial Investigation Report, dated July 2018- U.S. EPA Comment Letter
Gary Development Landfill Site, Gary, Indiana
CERCLIS ID No: IND077005916

Dear Mr. Samples:

The U.S. Environmental Protection Agency has completed its review of the Revised Remedial Investigation (RI) Report for the Gary Development Landfill Site. The Revised RI Report, dated July 2018, was prepared by Parsons Corporation (Parsons) on behalf of the Gary Development Landfill Respondents.

EPA is providing comments below that must still be addressed in a Final RI Report. Please provide your response to the comments below within 15 days. The Final RI Report is due 30 calendar days after receipt of U.S. EPA's notification of deficiencies, pursuant to Section II of the Statement of Work and Section X of the Administrative Settlement Agreement and Order on Consent dated May 5, 2014. If you have any questions, please feel free to contact me at (312) 353-7921, or by e-mail at blake.leslie@epa.gov.

Sincerely,

Leslie Blake

Leslie Blake
Remedial Project Manager

Attachments: 1. IDEM Letter

cc: (*via e-mail*)
Jeffrey Cahn, EPA
Stephanie Andrews, IDEM

Revised RI Report - General Comments:

1. *Groundwater Modeling.* As discussed in the June 2018 meeting, a limited groundwater modeling using Bioscreen was performed. While the use of Bioscreen is acceptable, a brief explanation/justification for the input values needs to be provided. This can be in bullet form, and does not need to be extensive. The objective is for a reviewer to be able to understand and verify the input values used in the model.

2. *Landfill Profile.* The report tends to describe the landfill contents and cover fill as part of the "geology" of the site. Suggest improving the discussion by describing a "profile" with the landfill contents/cover fill underlain by the geology of the site within the framework of a conceptual site model.

Revised RI Report text- Specific Comments:

1. *Section 1.3.1, Site Use History and Ownership.* Specific Comment 4 from EPA's May 1, 2018 Comment Letter has not been addressed. Additional text needs to be included to indicate the specific types of waste documented to have been disposed in the landfill. This information can be obtained from the HRS record; no additional research is needed.

2. *Section 1.3.2, Historical Data Summary.* Specific Comment 6 from EPA's May 1, 2018 Comment Letter has not been addressed. The third bullet of the third paragraph indicates that the source of PAHs and PCBs is the river. However, as has been discussed, there is reason to believe that landfill operations may be the source. The text should be revised to indicate that the landfill may be a source; it can also state that the river is a possible source.

3. *Table 2-1, RI Sampling and Analysis Summary.* Table 2-1 needs to be carefully reviewed and revised to reflect the actual number of samples collected. Some of the discrepancies are identified in the comments below regarding Appendix G.

4. *Section 3.1.1, Site Geology, Fourth paragraph.* The second sentence of this paragraph indicates that fill (including landfill waste and general refuse) varies from 8 to 63 feet thick. But the fourth sentence in this paragraph indicates that landfill wastes are from 3 to 75 feet thick. Please resolve this discrepancy.

5. *Section 4.5, Groundwater, first bullet.* The third sentence in this bullet, "although typically associated with petroleum products, these constituents may also be associated with hazardous waste within the landfill" should be moved and placed after the first sentence in the bullet.

6. *Section 4.8, Soil Vapor Results and Figure 4-38. Also Section 7.0, Summary and Conclusions where methane is discussed.* While measured methane concentrations may not be within the flammable range (between the LEL and the UEL), methane concentrations above the explosive range were detected. It is plausible that these methane concentrations, when released to the atmosphere, can be diluted to within the flammable range, and, if an ignition source is present, ignite. The April 2016 brush fire demonstrated this, as some of the existing vents ignited and remained burning for a while. Any remedy to be accepted for the site will

have to include measures to control and minimize the potential for methane to migrate beyond landfill boundaries. The specific measures to accomplish this can vary between alternatives, and/or can be determined at the design phase. The RI text should be clarified to indicate that vents/soil gas with concentrations of methane above the LEL represent potential concern. Future documents (Alternatives Screening Technical Memorandum, Detailed Analysis of Alternatives, and/or Feasibility Study Report) should include alternatives which manage methane as requested above.

7. *Section 4.9, NAPL Delineation Summary.* Table 1 from the Liquid Waste Delineation report should be copied and included as Table 4-12.

8. *Section 5.0 Environmental Fate and Transport, fifth paragraph.* As written, this paragraph indicates that the river is the probable dominant source of contaminants in the southern wetland and of the NAPL. This is a point of disagreement between EPA and the GDL Respondents. Please revise the text as indicated below (new text is in italized font):

   Although sediments in the southern wetland contain PCBs, PAHs, and certain metals at concentrations greater than criteria, these constituents were not observed at comparable levels in site soils during the RI. *However, while the landfill is known to have accepted oily wastes, there is limited information regarding these waste types and ultimate disposal location within the landfill. Both the landfill and the river are potential sources of contamination found in the southern wetland and the NAPL observed in test pits. Currently there is insufficient data to conclusively determine if there is a sole source of contamination, and it is not cost effective to perform additional investigations which may not yield the data necessary to clearly identify a sole source.*

9. *Section 5.3, Persistence and Transport in Southern Wetland Sediment.* The second paragraph should be modified to indicate there is a technical disagreement between EPA and the GDL Respondents. Please revise the text as indicated below (new text is in italized font):

   The heavy vegetation that is currently present limits the migration of sediments from the main body of the landfill toward the southern wetland, although this vegetation would not have been present during the active life of the landfill. *The probable source of the PCBs, PAHs, metals, and NAPL in or near the wetland area is either contaminant sources within the landfill or previous river flooding events. Migration of river constituents to the wetland could have occurred by four primary mechanisms.*

   And then, after numbered point 3 (before the paragraph which starts with "Total PCB Concentrations..."), add the following text:

   4) previous releases from the landfill related to the operation and disposal of wastes, including spills, discharge of pumped water/leachate (from the creation of an inward gradient).

10. *Section 6.0, Risk Assessment Summary.* Specific Comment 31e, requesting photos of the test pits used in the wetland delineation and habitat evaluation from EPA's May 1, 2018 Comment Letter has not been addressed. Photographs should be included and the text in either Section 6, Appendix F (Habitat Evaluation) or Appendix M (SLERA) revised to indicate where the photographs can be found.

11. *Section 6.1, Human Health Risk Assessment.* Although asbestos was not detected in soil samples from the landfill, asbestos is documented to have been disposed of at the landfill. Because asbestos was not identified in soils, it was not carried through to the risk assessment. However, it should be noted that literature indicates that there are other sampling techniques which may be better suited for analyzing asbestos in soil, and in particular, respirable asbestos fibers. Language should be added indicating that any future construction activities, including remedy construction, will have to address the potential for encountering asbestos (as well as potentially other unknown contaminants) as part of health and safety measures.

12. *Secion 7.0, Summary and Conclusions, first bullet.* The first bullet in this section should be modified as follows (new text is in italizedfont): "The GDL Site is in a highly industrialized area, with numerous sources of hazardous substances within a 2-mile radius, *including the GDL site and the* river".

13. *Section 7.0, Summary and Conclusions, eighth bullet.* The bullet should be revised as follows:

    Data sets from the river integrated with RI data do not conclusively identify a specific source for the contamination found in the southern wetland during their investigation. Both the river and the landfill are potential sources for the contamination. The river is the subject of ongoing remediation by USEPA under a Great Lakes Legacy Act Project Agreement, although remedial construction activities on the portion of the rive adjacent to the Site have not yet commenced.

Due to the addition of new material, the order of appendices has been revised. Comments on the Appendices presented below will identify the current location in the July 2018 version of the RI Report; the previous location will be included in the text as necessary for reference.

Appendix G- Data Validation Reports General Comments:

1. *Crosswalk Table*. Previous General Comment 5 on Appendix F (now Appendix G) from EPA's May 1, 2018 Comment Letter requested a cross-walk table to identify sample IDs, matrices, date of collection, SDGs, and analysis performed. The response indicated that a table would be provided; however, such a crosswalk table was not included in the July 2018 version of the RI report.

Appendix G- DV Reports Specific Comments:

1. *Table 2-1*. Previous Specific Comment 2 on Appendix F (now Appendix G) from EPA's May 1, 2018 Comment Letter identified discrepancies between Table 2-1 of the RI Report and the numbers of samples in the Data Validation reports. These discrepancies have not been fully resolved. For instance, Table 2-1 lists 102 groundwater samples for metals, mercury, and cyanide from monitoring wells, plus 39 groundwater samples form direct push borings. But the data validation reports contain information for only 86 groundwater samples (see DVRs beginning pdf pages 94, 124, 161, and 200 from Volume 4).

2. *Data Validation Reports*. Previous Specific Comment 4 on Appendix F (now Appendix G) does not appear to have been addressed. Neither the text in the RI, nor the text in the DV reports, indicates that 10% of the raw data was reviewed and 10% of the results re-calculated.

3. *Data Validation Reports*. Previous Specific Comments 2 and 5 on Appendix F have not been addressed. An explanation for the reason field QC samples were not collected per QAPP requirements, and the possible effects on the data quality, needs to be provided.

4. *Field Duplicate Reporting*. Previous Specific Comment 6 on Appendix F recommended the reporting of the higher of two values, or reporting both values, where field duplicates are available. The response disagreed with this approach. Either report the higher of the two values, or report both values, on figures. Reporting the higher of two values is conservative. Both values should be reported on tables; this has been done.

5. *Table 4-1 and Appendix F*. Previous Specific Comment 7 on Appendix F, there is still a discrepancy between the value for Aroclor 1248 for sample SD18M in Table 4-1 of the RI Report (48,000), Figure 4-3 of the RI Report (48,000) and the associated data validation report (Appendix G, pdf page 30 (value provided is 49,000). All tables and figures need to be checked and the correct value is provided.

Appendix L- Human Health Risk Assessment General Comments:

1. *Statistical Inconsistencies.* Previous General Comment 3 on Appendix J (now Appendix L) from EPA's May 1, 2018 Comment Letter has not been fully addressed. There is still conflicting data regarding how many samples were identified in the lead statistics. Table 2-1 from the Main RI report indicates 18 samples; the text in Section 3.1.1 of Appendix L (HHRA) indicates 17 locations for surface soils; Section 3.1.2 of Appendix L indicates 13 locations, and the UCL Tables indicate 27 samples for surface and 20 samples for subsurface. Part of the confusion may be that the text in the HHRA does not indicate a total number of samples included in the data set. The HHRA and RI needs to be revised to address these inconsistencies and provide additional clarification where necessary.

Appendix L- HHRA Specific Comments:

1. Most of the comments were addressed adequately but a number of clarificatons indicated in the Specific Comments must still be added to the document. See below.

2. *Section 3.1.2, Page 6, Paragraph 3.* Previous Specific Comment 6 on Appendix J (now Appendix L) from EPA's May 1, 2018 Comment Letter has not been addressed. Figure 2-6 shows 12 locations, not 13 (No MW-10). Table 2-4 also shows 12 locations (again, no MW-10). Both Figure 2-6 and Table 2-4 show some locations have multiple wells screened at different intervals.

3. *Section 3.2, Page 6, Paragraph 4.* Previous Specific Comment No. 7 on Appendix J (now Appendix L) from EPA's May 1, 2018 Comment Letter does not appear to have been fully addressed. Rather than just stating that "not all gas vents were sampled per the approved Work Plan", please state that "per the Work Plan, all gas vents were screened and the 6 with the highest field screening readings were selected for further sampling". This provides the rationale in this document without the reader having to refer to the Work Plan.

4. *Section 3.5.3, Page 8, Paragraph 1.* Previous Specific Comment No. 10 on Appendix J (now Appendix L) has been addressed by providing the information in a new Appendix (Appendix J – Grand Calumet Historical Data) to the main RI Report. In the new Appendix J, please add a note that only the portions of the documents relevant to the Gary Development Landfill RI/FS are provided. This should minimize the reader being confused as to why complete copies of the reports are not provided.

5. *Section 9.0, Pages 29 and 30.* Previous Specific Comment Nos. 21A.c and 21B.a on Appendix J (now Appendix L) have not been addressed. Some of the constituents of concern listed in the in-text tables, specifically 2-methylnaphthalene and naphthalene in Grand Calumet River sediment are listed as COPCs but are not associated with risks $\geq$1E-06 and/or hazards > 1 for the current and future land use scenarios.

Appendix M- Streamlined Ecological Risk Assessment General Comments:

1. Most comments were addressed adequately, but a number of clarifications indicated in the specific comments must be added to the document.

2. Previous Specific Comment 4 on Appendix K (now Appendix M) from EPA's May 1, 2018 Comment Letter 4 requested full citations for the requested approach to further evaluate sediment polycyclic aromatic hydrocarbons (PAH). The full citations are as follows:

   EPA. 2003. Procedures for the Derivation of Equilibrium Partitioning Sediment Benchmarks for the Protection of Benthic Organisms: PAH Mixtures. Office of Research and Development (ORD). EPA-600-R-02-013. November.

   EPA. 2010. Explanation of PAH benchmark calculations using EPA PAH ESB approach, Originally developed by Dave Mount, ORD Duluth. June 23. Office of Research and Development.. https://archive.epa.gov/emergency/bpspill/web/pdf/explanation-of-pah-benchmark-calculations-20100622.pdf

Appendix M- SLERA Specific Comments:

1. *Sections 4.2, 4.3, and 4.4, Pages 9 and 10, and Tables 1.2, 1.3, and 1.4.* The surface water screening values were updated as requested except for lead. According to the source of the lead screening value, EPA 2018, it is hardness based, and the value should be revised accordingly in the SLERA. This will result in a higher lead screening value, so chemicals of potential ecological concern (COPEC) could change.

2. *Section 5.2, Page 13, Paragraph 2, and Table 3.1.* The text notes that sediment to plant uptake factors were used calculate plant tissue concentrations. However, a number of the equations identified in Table 3.1 that reference "EcoSSLs 2007" are based on soil to plant uptake factors. The text should be revised to explain to the reader why these values were used, rather than sediment to plant uptake factors.

3. *Section 5.2, Page 13, Paragraph 3, and Table 3.2.* The text identifies an equation to calculate COPEC concentrations of organic constituents for an invertebrate in Table 3.2. However, the information provided in Table 3.2 notes use of this equation only for one organic COPEC (bis[2-ethylhexyl)phthalate), and a number of other equations were used for other organics, such as for high molecular weight (HMW) and low molecular weight (LMW) polynuclear aromatic hydrocarbons (PAH), dieldrin, dichlorodiphenyldichloroethane (DDD), and total polychlorinated biphenyls (PCB). The text should be revised to reflect the actual methodology applied. Also, the text states use of biota-sediment accumulation factors (BSAF) for inorganics, while the table uses equations from EPA's EcoSSLs that are based on soil rather than sediment. The report should either use BSAFs as noted in the text or present a rationale for use of soil-based bioaccumulation values over sediment based on BSAFs.

4. *Section 5.2, Page 13, Paragraph 4 and Table 3.3.* The text identifies the equation to estimate COPEC concentrations in small prey. The equation uses a transfer factor to estimate concentrations in tissue from sediment concentrations. However, information in Table 3.3 indicates that this approach was applied in some cases, but in other cases, diet concentrations were used. As noted in the original comment No. 9 provided by EPA, the preference is to use diet concentrations to estimate small prey tissue concentrations. The text should be revised to present the actual methodology applied and provide justification for any deviations from the requested methodology. In addition, the equations presented in this section are based on sediment concentrations, while a number of the transfer factors are for soils. The text should present a clear rationale for use of soil-based transfer factors rather than sediment-based transfer factors.

5. *Section 5.2, Page 13, Paragraph 5.* The text states that to estimate (PAH) concentrations in fish tissue, benzo(a)pyrene equivalents were calculated. It is not clear why this approach was taken. Estimated fish tissue concentrations were used in the food chain model to determine the dose to piscivorous avian receptors, and PAH toxicity reference values for that receptor are grouped by HMW and LMW PAHs, not by benzo(a)pyrene equivalents, as noted in Tables 5.1 through 5.9. Suggestion is to remove reference to the benzo(a)pyrene equivalence concentrations from the SLERA because the report already includes the evaluation of HMW and LMW PAHs.

6. *Section 5.4.5, Page 15, Paragraph 9.* The text states that water hardness in the southern wetlands is 365 milligrams per liter (mg/L) as calcium carbonate (CaCO3); however, information in Tables 1.2, 1.3, and 1.4 indicates the hardness at 398 mg/L as CaCO3. The tables or text should be revised to be consistent.

REFERENCE

U.S. Environmental Protection Agency (EPA). 2018. Region 4 Ecological Risk Assessment Supplemental Guidance, March 2018 Update. Online Address: https://www.epa.gov/risk/regional-ecological-risk-assessment-era-supplemental-guidance

Appendix N- Preliminary Remedial Action Objectives Memorandum General Comments:

1. The RAOs provided need to include the following: For both ecological and human health – prevention of exposure to landfill contents (a note can be that the presumptive remedy approach which was used assumes that the landfill gets a landfill cap). Also, methane needs to be managed so that a) methane does not migrate off-site and b)methane does not create a flammability/explosion hazard (A cap which includes a gas venting layer and appropriate post-collection management of landfill gas would likely achieve this RAO). An additional RAO may be required to address groundwater, particularly if PFAS/PFOA are identified in the upcoming PFAS/PFOA investigation at concentrations above screening levels.

2. The report indicates that there are plans to remediate the stretch of the Grand Calumet River which is adjacent to the GDL site. An RAO, for all media (sediment, surface water, soil, and groundwater, NAPL) would be to protect the river from re-contamination, should be included. It is understood that, assuming the presumptive remedy (containment using a landfill cap) is selected, that the cap will likely partially achieve this RAO; however, additional measures (such as managing groundwater) may be needed to fully achieve the RAO.

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Eric J. Holcomb
Governor

Bruno L. Pigott
Commissioner

August 30, 2018

Ms. Leslie Blake
USEPA Region 5
77 West Jackson Boulevard
Mail Code SR-6J
Chicago, IL 60604

Dear Ms. Blake:

Re: Revised Final Remedial Investigation Report for the Gary Development Landfill Superfund Site, Gary, Indiana

Our comments on the Remedial Investigation Report have been adequately addressed. We have no further comments on the revised report. Please do not hesitate to contact me at (317) 234-0358 should you have any questions.

Sincerely,

Stephanie Andrews
Senior Environmental Manager
Federal Programs Section
Office of Land Quality

SA:tk
cc: Rex Osborn, IDEM